

Remarks

Claims 1-57 were pending in the application. Claims 1, 2, 25, 26, 28-31, and 54-57 were rejected. Claims 3-24, 27, and 32-53 were merely objected to and no claims were allowed. By the foregoing amendment, no claims are canceled, claims 1, 6, 30, 34, 54, and 55 are amended, and claims 58-61 are added. No new matter is presented.

Allowable Subject Matter

Applicant appreciates the indication of allowable subject matter in claims 3-24, 27, and 32-53. In the second ground below, the Office did not make any specific assertions regarding independent claim 56. If the Office intends to maintain this rejection, a reasoned explanation of the rejection of the claim is requested.

Claim Rejections-35 U.S.C. 102

Claims 1, 28, 29, 30, 54, and 55 were rejected under 35 U.S.C. 102(e) as being anticipated by Lindstrom (US6644080). Applicant respectfully traverses the rejection.

In the *Response to Amendment and Arguments* section of the Office action at page 3, the examiner asserted:

claim 1 does not define clearly what is the leading edges of the tool is maintained within minimum and maximum values as specifically argued as the distance between the worksheet or other object and the tool may be determined so that the tool may be automatically retracted or lowered if the worksheet is moved vertically in the response. Second of all, Lindstrom is aimed at determining the worksheet is directly under the tool in the correct horizontal as well as vertical position so that the tool strikes the worksheet in the correct place and the apparatus of Lindstrom therefore includes feature to determine the distance between the tool and worksheet and maintain the distance between minimum and maximum values (see col.4, lines 62-67 where arm 40 may move in any direction x, z, and r axes).

8/30/10 Office action, page 3, lines 7-15. The first sentence is very much unclear. An explanation is requested. As best can be told, the Office appears to be reading out limitations of the claim and suggesting that the retraction be more expressly identified.

In the interest of advancing examination, claims 54, and 55 have been amended and

claims 58 and 59 added to identify the retraction. The retraction is already supported, *inter alia*, in claims 22 and 49.

The second sentence appears to suffer several additional deficiencies. Even with vertical distances involved, at most, it relates to the distance between the tool and the workpiece (not an object). If the Office's intention in the quoted text above is to distinguish between "the objects" and the workpiece, Applicant has added claim 60 to further distinguish.

Additionally, the cited passage of Lindstrom relates to the movement capability of the robot which is not inherently the same as the workpiece. Specifically, the nature of the robot's engagement to the workpiece is precise vertically. No matter where on the sheet the robot engages the sheet and no matter what the size and shape of the sheet is, the robot's vertical position determines the sheet's vertical position. Thus, this is not a parameter that necessarily needs to be sensed. However, the robot may engage the sheet anywhere on the sheet. Thus, precise lateral positioning of the robot does not ensure correspondingly precise predetermined lateral positioning of the sheet.

At page 4, the Office has revised the prior arguments to now make reference to the robot movement as is noted above.

Lindstrom discloses a system for positioning a worksheet for bending by a press brake. The system of Lindstrom is aimed at detecting the position of the worksheet relative to the bending tools with a laser system and automatically adjusting the position of the worksheet by comparing the position relative to a programmed position for a particular bend. Thus, the system of Lindstrom appears to include a tool moving through a known path of movement and detecting the location of objects (at least the workpiece) in or adjacent the path of movement.

However, Lindstrom does not determine a vertical distance between the objects and the tool. Column 6, lines 8 to 14 of Lindstrom states that the system evaluates the position of the edge of the worksheet with reference to the plane along which the tools lie. That is the horizontal position of the worksheet is determined relative to the plane of the vertically moving tools. The system does not determine the vertical distance between the worksheet and the tool, let alone any other object.

This difference is clear in the differing purposes of the present invention and Lindstrom. Lindstrom is aimed at determining whether the worksheet is directly under the tool in the correct horizontal position so that the tool strikes the worksheet in the correct place. As defined in claim

1 of the present invention, in the first mode of operation the distance between the tool and the leading edge is maintained between minimum and maximum values. This may have several specific further aspects referenced in the remaining claims. For example, the distance between the worksheet or other object and the tool may be determined so that the tool may be automatically retracted or lowered if the worksheet is moved vertically. That is, if the worksheet is moved up such that the distance between the worksheet and tool falls below the minimum value, the tool is retracted to maintain the distance between said maximum and minimum values. Also, if the tool were moved down such that the distance was then greater than the maximum value, the tool would be moved down. The apparatus shown in Lindstrom is not concerned with the distance between the worksheet (or other objects) and the tool but the correct horizontal positioning of the worksheet. The apparatus of Lindstrom therefore includes no feature to determine the distance between the tool and worksheet and maintain the distance between minimum and maximum values.

The effect of having the minimum and maximum values is contrasted, for example, with a simple retract to a predetermined position. In the prior art, the position is typically a maximally retracted position. Alternatively, it is a predetermined position associated with work stage. *See* present paragraph 0005. Instead of having an automatic retract to a predetermined position, the claim 1 minimum and maximum value define a desired retraction distance (or range thereof) so that the retracted position is not a single predetermined retracted position. This can increase productivity and can limit opportunities for insertion of hands or other foreign objects in the path of the tool.

The Office has not established how Lindstrom achieves this. For example, the Office cites col. 6, lines 10-35. However, this merely identifies general detecting and does not establish the nature of the minimum and maximum values. As is discussed above, this combination of minimum and maximum values reflects respective considerations of safety and efficiency relative to foreign objects. Lindstrom's identification of proper alignment does not relate to any maximum or minimum relative position.

As a further amendment, Claim 1 has been amended to identify that the path extends to a stationary member (e.g., the anvil as supported in [0046] of the present pregrant publication).

New claim 61 is supported by former claim 30 with further reference to "and extents" supported at [0035] of the present pregrant publication and "wherein the minimum and

maximum values are altered in response to the (detected) extents of objects” supported at the bottom of [0045]. FIG. 11 shows a lateral position sensor that in effect detects the sideways extents of the material placed onto the anvil. These position sensors are described at paragraph [0065]. No such extent determination is suggested.

Claim Rejections-35 U.S.C. 103

Claims 2, 25, 26, 31, 56, and 57 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lindstrom in view of Appleyard (US6903327) and Chen et al. (US6122023). Applicant respectfully traverses the rejection.

Only Appleyard was further asserted against claim 2. Appleyard was cited for detecting the presence of obstructions. However, even if combined with Lindstrom, this does not cure the deficiencies in the underlying rejection of claim 1, namely, the maintenance within minimum and maximum values.

Chen et al. was then cited against claims 25 and 26 as disclosing a laser diode. The Office asserted Chen et al. as disclosing “a laser diode and the current through the laser diode is modulated to create varying speckle patterns and thereby improve resolution of the received image.” 8/30/10 Office action, page 5, last three lines; 11/24/09 Office action, page 4, lines 14-16; 4/28/09 Office action, page 4, lines 18&19. The Office further asserted that it would have been obvious “to use such [*sic*] the light emitting means which includes a laser diode and the current through the laser diode is modulated to create varying speckle patterns and thereby improve resolution of the received image in order to improve the overall the resolution of the images by eliminating speckle.” 8/30/10 Office action, page 7, 3-6; 11/24/09 Office action, page 4, last four lines; 4/28/09 Office action, page 4, penultimate line-page 5, line 2. This is mere speculation. Chen et al. involves “a non-speckle liquid crystal projection display system” such as for use in small electronic equipment. Col. 2, lines 56-57, 33-34, and 15-19. No analogy has been established between this and the present invention (or the underlying Lindstrom/Appleyard combination). In Chen et al., it is used as a display. In the combination, it is used as a light source for imaging. The Office has provided no reasoned explanation for such a change in function.

Accordingly, Applicant submits that claims 1-61 are in condition for allowance.

Reconsideration and further examination are requested. Please charge any fees or deficiency or credit any overpayment to our Deposit Account of record.

Respectfully submitted,

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